THE OPTICAL
MAGIC LANTERN
JOURNAL
AND
PHOTOGRAPHIC ENLARGER.
EDITED BY J. HAY TAYLOR.

Vol. 2.—No. 18. [Entered at Stationers' Hall.] NOVEMBER 1, 1890. Price One Penny.

CONTENTS.

PAGE.
Notes 47
The Advantage of Large Object Glasses for Lanterns 48
Hand Cameras for Obtaining Slides for the Lantern—No. 7 48
The Influence of Size in Lantern Objectives 49
Flashes on Lantern Topics ... 51
How to Enjoy Looking at Lantern Transparencies without a Lantern 51
Hints on Enlarging 52

PAGE.
The Arc Light for Projection 53
A Scheme of Lantern Slide Exchange 54
Open-Air Entertainments ... 54
An Optical Pointer 54
Editorial Table 55
Correspondence. — Washing Sitters' Faces—Ether-Oxygen Saturator—Copying by Artificial Light 55-56
Society Meetings 56
Notes and Queries 58

CONTENTS OF No. 17.

Notes—Dry Collodion Plates for Lantern Transparencies—Hand Cameras for Obtaining Slides for the Lantern (No. 6)—Photomicrographic Lantern Transparencies for Histological Teaching and Research—Reminiscences of My First Lantern Show—Lantern Slide and Transparency Making—Music Halls and the Lantern—Metamorphosic Effect Slides—The Lantern and Art Education—The Lantern Society (A Hint)—Signals for Changing Slides—Washing Sitters' Faces—The Arc Light for Projection—Editorial Table—Correspondence (American Lanterns—The Lantern Society—Lantern Slide Cameras—South London Photographic Society—Gloucestershire Photographic Exhibition)—Society Meetings—Notes and Queries.

Notices.

THE *Optical Magic Lantern Journal and Photographic Enlarger* is issued on the 1st of every month, price One Penny, and may be obtained from all Newsvendors, Railway News Stalls, Photographic Dealers, or from the Publishers, at the following rates, post free :—

		Continental.	United States.
12 months ...	1/6 ...	2/	60 cents.
Single copies ...	/1½ ...	/2	6 „

Advertisements (Scale of Charges), displayed :—

	£	s.	d.
Front and back pages, by arrangement.			
Ordinary page, facing matter (whole) ...	3	0	0
„ „ ... ... (half) ...	1	15	0
„ „ ... ... (quarter) ...	1	0	0
„ „ ... ... (eighth) ...		10	0
„ „ per 1 inch in column ...		6	0
„ „ „ ½ „ „ ...		3	0

Special quotations for a series.

Exchange Column, General Wants, &c. (not Trade)—First 20 words, 6d.; and for every 3 additional words, 1d.

Advertisements must reach the office not later than the 24th of each month. All cheques and postal orders to be made payable to Taylor Brothers.

Editorial communications must be addressed, The Editor; advertisements and business communications to Taylor Brothers, care of the Publishers, Dorset Works, Salisbury Square, Fleet Street, London, E.C.

American Agents :—The International News Co., 83 and 85, Duane Street, New York City.

Notes.

OUR readers will notice that a few additional pages are included in this issue.

* * *

PROFESSOR MUYBRIDGE has returned from a trip to the United States, and has entered into numerous lecturing engagements in this country. He informed us at a recent interview that he was arranging plans for a new lantern of skeleton type which he intended to have constructed.

* * *

THE annual general meeting of the Lantern Society will be held at 20, Hanover-square, W., on the 3rd inst.; and on the 23rd inst. there will be an exhibition of slides, for which tickets will be issued to members for distribution among their friends.

* * *

IN reply to an article, "A Scheme of Lantern Slide Exchange," by Mr. T. G. Benson, which will be found on another page, we shall be pleased to insert a short notice (free of charge) from the secretary of any society, with list of slides for exchange with any other society.

* * *

MESSRS. ARCHER & SONS, of Liverpool, are perfecting a new form of dissolving view lantern to use one light only. The lenses are placed at either end of the lantern, and the rays are projected on the screen by reflectors. When this new form of lantern is finished we hope to give our readers a full description.

* * *

THE lantern has recently been used to popularise Spiritualism. Mr. J. Burns, editor of the *Medium and Daybreak*, lately gave a lecture on the "Phases of the Phenomena of Spiritualism," and exhibited upwards of a hundred slides, including portraits of celebrated mediums, spirit writings, &c.

* * *

THE American set of slides, "In and About Colombus," will be shown on the 6th instant at the meeting of the Dewsbury Photographic Society, Victoria Café, Dewsbury. Visitors invited.

MESSRS. TAYLOR, TAYLOR & HOBSON are making a specialty of lantern objectives.

* * *

IN connection with the Tunbridge Wells Photographic Exhibition, to be held from 26th to 29th inst., there will be a short lantern entertainment each evening. Sir David Salomons has promised to send his magnificent lantern (made by Steward), and intends to manipulate it himself.

* * *

IT has been suggested by Mr. T. H. Holding that white mackintosh having a matt surface might be employed for making lantern screens, the advantages claimed being opacity combined with thinness, and also a freedom from cracking when rolled up—many surfaced canvas screens having a tendency to crack when being opened after having been rolled up for any considerable period. We understand that Mr. F. W. Hart, of Kingsland-green, is experimenting with several samples of mackintosh to test its desirability for screens.

* * *

A NEW patent enlarging apparatus is about to be introduced by Mr. J. C. Shenstone, Colchester, the wholesale agents for which are Messrs. Wrench and Son, of Gray's-inn-road, W.C.

* * *

MR. ARTHUR E. MORTON, the popular instructor of typewriting at the Regent-street Polytechnic, writes:—"The following novel application of the typewriter may possibly be of interest to the numerous readers of your periodical. We are in the habit of utilising the limelight lantern in connection with advertising our numerous classes, entertainments, &c., and hitherto written or printed slides have been used; the thought occurred to me that if I could write on a transparent gelatine paper by the typewriter it would look much neater and bolder on the sheet, which is fixed on the opposite side of the roadway to the lantern. The experiment was tried. I found the gelatine would not hold sufficient of the ordinary ribbon ink, so that it was necessary to dust it over with powdered chalk before writing; the gelatine sheet was then mounted between glass in the ordinary manner, and the result was extremely satisfactory in every respect. The display required a little ingenuity to get it in the limited space, but it was, as expected, much bolder and clearer than the old method."

* * *

IT has been decided, provided sufficient interest is taken in the movement, to hold an exhibition of the work of the members of the Enfield Camera Club at the Bycullah Athenæum, Enfield, in the early part of January next, at which prizes and certificates will be given for the best photographic productions.

The Advantage of Large Object Glasses for Lanterns.

THE topic of object glasses is one that is necessarily of interest to every possessor of a lantern; for if there is one subject that all are agreed upon, it is to get the greatest possible amount of light thrown on the screen. At a recent meeting of the London and Provincial Photographic Association it was said by one of the speakers that if the light was small, the condenser perfect, and the slide devoid of half tint, no matter what length of focus the object glass might be, one of small diameter would answer just as well as a large one; for as the light travels in a straight line, it would be projected forward in a cone, of which the apex would be reasonably small, and if the object glass were placed there, it would stand to reason that the whole of the light would pass through it. But as nearly every one knows, in ordinary practice the light is usually more or less large, and after passing through the condenser is projected in a variety of directions other than the conical form which might be assumed in geometric optics. This being the case, a great gain in lighting is obtained by having the object glass so large as to take in all those straggling rays.

The majority of optical lanterns in common use have as an objective one of the French quarter-plate portrait combinations, the diameter of which seldom exceeds one and a quarter inches. While these answer reasonably well, several experts find that an increased illumination is obtained by having an objective of much larger diameter.

There is a class of portrait lenses that was introduced some time ago, known as quick acting carte portraits, in which the diameter ranged from two to two-and-a-half inches; these should answer every requirement.

In another column we give a *resumé* of the arguments of the speakers on the occasion referred to, and which pretty nearly exhausts this subject.

——:o:——

Hand Cameras for Obtaining Slides for the Lantern.

NO. 7.—"THE GRIFFIN."

THIS camera, which is manufactured by Griffin and Sons (Limited), of Garrick-street, Covent Garden, possesses many novel points. Its external measurements are 11½in. × 5½in. × 4¾in., and in appearance is a box provided with two knobs or handles at the side (Fig. 1).

Unlike many hand cameras, the plates (12) are put into a grooved magazine, which is placed in the camera proper. As each magazine forms a neat and light-tight receptacle for the plates, they are a convenient means of carrying a stock of plates.

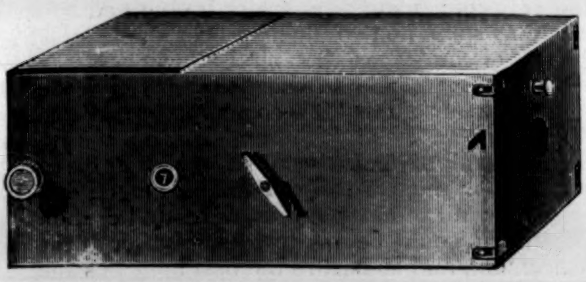


Fig. 1.

To charge the camera, a magazine (Fig. 2) is inserted into the end of the camera by a sliding lid. This chamber, which is fitted with rack-work, engages with a pinion, the movement of which causes the plate box magazine to be raised or lowered so as to present any desired plate at an opening in the division placed in the camera as shown in Fig. 3. A series of numbers are marked on the side of the magazine; and when a fine line placed beside the number which is shown at a small opening coincides with a similar mark at the edge of the opening it indicates that a plate is in exact register for being conveyed to the exposing frame. This frame is swung in a horizontal position by a movement of the large handle shown in Fig. 1, and just before it is quite horizontal, it engages with a spring flange, which acts as a light tight door to the slot in the division mentioned, and causes it to open. The horizontal carrier thus forms a continuation of the groove in the magazine presented at this opening.

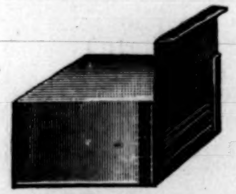


Fig. 2.

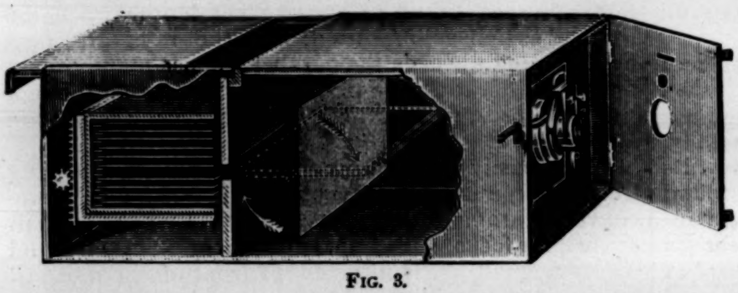


Fig. 3.

A slight tilt of the camera suffices to make the plate slide into the carrier, which is then brought to the perpendicular for exposure.

As soon as the carrier is released from the horizontal position, the spring slide at once closes the slot, thus preventing the possibility of any light reaching the stock of plates during exposure.

The lens is a rectilinear of 5in. focus, and the shutter is one invented by this firm, and is of the plunge principle, occupies little room, and may be used either for time or instantaneous exposures.

The most useful points in connection with this camera are, that the exposed plates may be removed and a fresh supply inserted in open daylight, as provision is made for closing the end of the magazine before it is removed from the camera; also that any particular plate may be exposed and returned to its place.

Although the camera we tried was not provided with means for recording those plates which were exposed, we think that it might be advantageous to have a small slab on the upper part of each magazine, so that one could if desired mark the nature of the plates with which it was charged, and also a similar numbered slab on the camera itself, on which could be marked in pencil a tick against the numbers of the plates as they are exposed. This, however, would only be necessary when the exposures were not made according to the consecutive order of the plates.

The camera being well made works with certainty.

—:o:—

The Influence of Size in Lantern Objectives.

Opinions of Experts—Messrs. Baker, Freshwater, and Traill Taylor.

At a recent meeting of the London and Provincial Photographic Association, the question of large or small objectives for lanterns was opened by Mr. T. E. Freshwater, who remarked that if you are using a short-focus condenser, one that is usually supplied with a lantern for limelight, you will find the cone of light comes down to such a point, that is, about 9in. before it crosses. Now if you place a 6in. lens in this cone at its right place—that is, at its focus with the picture in the lantern—you will see that the diameter of the spot of light is about 1½in. in diameter. So you see a 2in. lens is quite large enough to pick up all the rays from a 4in. condenser and carry them to the front combination; but if you place an 8in. lens, this same cone of light has come down very much, and is almost on the cross, so that there is not enough light to fill the lens so as to illuminate the whole of the disc, as I shall presently show. I intend to put on lenses of different forms—the old meniscus pair, single achromatic, using in front of both of these a stop about one-third of the diameter of the lens. This stop is necessary to cut off the outer pencils of light and give a flatter field and better definition. The other lens is a combination of the portrait form, but altered in the curves to give a flatter image on the screen. Now if you use a large lens of this form of about 8in. in focus with the same condenser, you will undoubtedly gain some considerable advantage; it will pick up the rays better than the small lens and cover the disc much better, but you so increase the size of all your fittings and the weight of your lantern you have to carry. Some will say that is of no consequence; you must have a cab; a pound or two is of little moment. That is all very well, but a set of such lenses is rather a serious matter. Now if you alter the condenser in such a way that the cone of light is longer, you will then illuminate the smaller lens, as I will show, and get as good a picture as with the large objective. Then comes the question of definition. It does not matter for long-focus lenses what form is used; a single lens will give just as flat a field as a compound lens, and pass more light. This will apply to lenses of above 10in. in focus.

After some minor discussion relative to the size of condensers, Mr. J. Traill Taylor showed by diagrams that in the case of a perfect optical system there was no advantage in a large objective, provided that the object in the slide was clear black and white. With photographic slides, however, on account of their semi-translucency, there was a good deal of light passing that was dispersed so far as to be out of the area included by a small objective; whilst with a large objective this light would be received and utilised in the formation of the large image. A form of objective which he had constructed, and which worked very successfully, was a slight modification of the ordinary Petzval portrait lens. In order to obtain greater flatness of field he had used a double convex of about equal radii for the positive lens of the back combination. This, with a suitable concave lens and a small front lens, gave very satisfactory results. With a paraffin illuminant there was an advantage in a large objective, as well as to catch the light spread about by imperfection in the condensing system. As an example of what could be done, the late Mr. Thomas Grubb had constructed an achromatic condenser of 6in. diameter, capable of passing the whole of the light through a ¼in. microscopic objective. It was impossible to make a perfect condenser with less than three glasses. There were many inch condensers that would not illuminate a 3in. slide, especially if of cushion shape. He had overcome the difficulty on one occasion by unscrewing the condenser till it only just hung in its place, and so brought it close enough to the slide to illuminate it all over.

Following up the question, Mr. G. R. Baker, in an article in the *British Journal of Photography*, asks: "Shall condensers be of various foci for different objects, or will one do for all purposes? Theoretically, each objective used should have a condenser to suit its particular focus; but, practically, it will be found when using the limelight that a good compound condenser of about 3½in. combined focus will answer for all objectives from 6in. to 12in. focus. The *form* of lenses is not of so much moment as their correct working and true centring, but I prefer a meniscus back and double convex front for limelight work, and *size*, 4¼in. diameter. The back lens may be a 4in. plano if preferred, and the front a 4¼in. double convex. For the oil light, where the flame is large, and a 4in. condenser employed, the two plano-convex lenses of 6in. focus, each mounted with their convex surfaces nearly touching, and giving a combined focus of 3in., are as good as can be desired, and the flat surfaces being outwards permit of the lens coming close up to the slide—a very important point, for it is only by this means a cushion-shaped slide can be well covered and projected by a short-focus objective.

"*The Condenser to move to and from the Slide.*—This, in my judgment, is an adjustment that should be provided in the better class of lanterns, for the cone of light can be made by this means to just cover the photograph, and so concentrate all the rays; whereas, if stationary, a considerable number would be wasted when showing circular pictures if the distances were arranged for square or cushioned matted ones. The slide can be moved forward by an adjustment of the stage, or a double stage can be arranged, the same as was done in a 'Bridgman' triple lantern made for the Rev. C. H. Turner some years since; or, what perhaps is a better plan for solid-fronted lanterns, the condensers can be moved in their tubes slightly by means of bayonet catches or a spiral adjustment. This latter method has been very well developed in a triple lantern recently made for Sir David Salomons, for a ready and very convenient adjustment is obtained by simply touching some non-conducting heat knobs attached to the cell of condenser, the spiral allowing of the most delicate movement. It will be readily conceded that an adjustment of this kind could not be made continually during an evening's entertainment, for it would involve manipulating the light in the latter case or refocussing in the case of the double stage; but if all square or all round pictures were to be shown, the adjustment could be made to suit either at the commencement, and so ensure the best light possible.

"*Objectives.*—Theoretically, if one is using a point of light, or a perfect light, as it has been termed, small lenses for the objectives answer, providing the condenser is of a focus to converge the rays so as to fully illuminate (after passing through the photograph or picture) the lens when at its proper focus. In practice one does not get a point of light, for with the limelight the incandescent area is comparatively large, and with the electric arc light there is a certain amount of flame caused by the combustion of the carbon. Hence the rays coming from the luminant and passing through the condenser are not all focussed together, and consequently there is a secondary area of illumination which, in the case of long-focus objectives, is of considerable moment. It is well-known the lime or luminant has to be nearer the condenser when the long-focus lenses are used, and the rays are then approaching towards the parallel; consequently those straying from the true path, after converging through the condenser, will be lost, unless the back lenses are large.

"It is easily proved how much stray light is coming from a large luminant by using a pair of 2in. plano-convex achromatic lenses as the objective, say, of 6in. equivalent focus, with a three or four-wick lantern, and unless a small top is inserted in front of them, it will be found the projected picture on the screen is all fuzzy; while with the identical lenses in the same position when using the limelight, it is quite clear and sharp. Now if the rays from the oil-lamp and condenser are received by a correcting lens of 2in. diameter, which is nearer the slide, and then passed on to the achromatic front lens of the combination—on the same plan as the portrait lens—the resultant picture on the screen will be satisfactory. The limelight works, when set for long-focus objectives, somewhat in the same way, although in a lesser degree, and unless a large-diameter lens—say, 3in. for 12in. or longer-focus objectives—is used for the correcting lens, all the rays are not gathered up and passed on to the achromatic lens. For objectives of 7in., 8in., and 10in. focus the size recommended is 2⅜in. diameter, and for the 6in. focus, 2in. diameter. If large-diameter single lenses—say, 2¼ or 2½—are used of the plano-convex form of short focus, such as I have seen sometimes in apparatus, the result is generally bad definition, no matter what size stop (within reasonable limits) is used. This applies to those of 7in. and shorter focus; therefore, nothing larger with this form than 2in. should be used; and then better results are obtained by combining two longer-focus plano-convex lenses to give the same focus—say, two 14in. to give 7in., or 10in. to give 6in. focus. The very short-focus ones require special correcting."

Flashes on Lantern Topics.

By Bull's-eye

THIS has been a long intermittent flash, and the only apology, if that be needed, is the true one—the machinery had got seriously out of gear, and try how I would the lamp could not be "lit"—would not stand lighting, in fact; but in reappearing, allow me, Mr. Editor, to congratulate you and the readers of *The Optical Magic Lantern Journal* on its improved appearance, and also on the fact that out of the entire circle of photographic literature it has been selected, together with three of the veteran photographic journals, to adorn and edify the readers frequenting the magnificent new public library, which has been presented to the City of Edinburgh by the munificent Scoto-American, Mr. Carnegie, at a cost of £50,000, which aided by a public rate is now in full swing.

Alluding to a late answer (to "Nix"), as to wet plate slides and a substratum for them, allow a veteran to suggest that there is always another way of doing a thing, and this is it: add from twelve to twenty drops per ounce of strong ammonia to the albumen. Keep it in a wide-mouthed bottle, stoppered or firmly corked, and it will keep well. Instead of coating the plate all over, damp a bit of cotton cloth by tilting the bottle; then rub with the damped cotton all round the edges of the glass one-quarter inch or so. This dries in a few seconds, and is most easy of application. Dilute albumen does not flow easily over the plate, unless the latter is wetted under the tap, and this saves that and the additional difficulty of introducing organic matter in quantity into the bath, which ultimately disturbs its balance, produces fogs and all manner of similar evils.

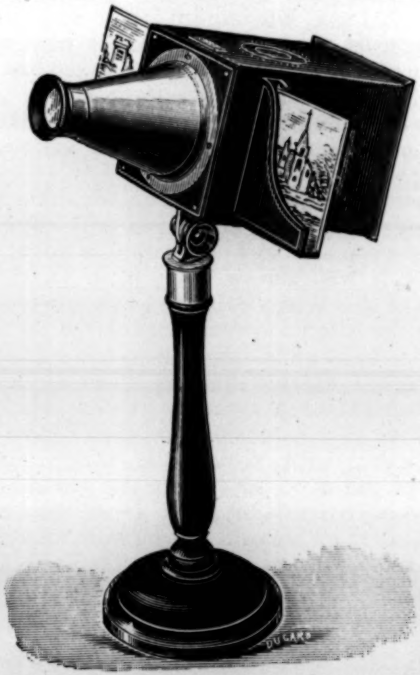
It is strange what a conservative lot we are. Take the lantern chimney, for instance. In the case of the electric, the lime or similar lights, there is not the slightest need for what is after all only a survival of the early dingy oil toys we were accustomed to half a century ago. About eighteen years ago I thought out this question, and making a new lantern for the limelight exclusively dispensed with the chimney altogether with great advantage, more especially in the matter of heat and its utilization.

The body was mahogany, and the tin cover was pierced all over in parallel lines with punched out openings about three-sixteenths of an inch in diameter, each row about two inches apart; these were covered to prevent the escape of light by suitable strips rivetted (not soldered) on the under side, and a raised edging was put all round the outside. This was used to utilize the heat for warming the slides, condenser and lenses on frosty nights. In packing much room is saved, and it is far more compact than the ugly crooked funnel.

You may make the idea a present to your enterprising lantern advertisers, as I never patented that or any other new thing I ever made or thought of. The same lantern has the central portion of the bottom made to slide entirely out, or be fixed at any distance from the condenser, and so can have any form of burner attached to it. With the exception of an occasional change of the latter it is as efficient now as when first made; and if not so showy, being a tool made strictly for use, it is as good now as on the first night.

How to Enjoy Looking at Lantern Transparencies without a Lantern.

WHO that possesses lantern transparencies does not from time to time sit in front of a boxful, and taking them up in turn feast the mind upon their beauties, and recall the particular circumstances under which the negatives were taken, or the slides obtained? Better still can they be viewed with a magnifying glass in hand; but apart from seeing them projected by a lantern, one of the best means of viewing them is by a compact instrument called the Lanternescope, the invention of Mr. Tylar, of Birmingham. This instrument, which is both useful and ornamental, will be readily understood from the accompanying cut.



Although they are made of different materials, according to price, they are all similar as far as regards the perfection with which the slides may be viewed, and we will confine our remarks to the instrument before us.

Supported on a mahogany-turned stand—the base of which is loaded, so as to give stability—is a box, 5¼in. × 4in × 4in. This is affixed by a swivel joint, so as to be capable of being tilted. At a distance of an inch from the front of this box is placed an adapter or carrier; about an inch further back is a sheet of moveable ground-glass, whilst another is similarly placed at the far end. These two glasses permit of an even illumination of the slides. The slides are passed through a carrier, which is capable of holding three pictures, that in the centre being in position for being viewed through the magnifying glass at the end of a cone in front, which may be adjusted to suit the requirements of various eyesights. By removing the back ground-glass, and substituting tinted glass, we obtained some exquisite effects with transparencies, and found that by coating the tinted glass with ground-glass varnish the effect was still enhanced.

Placed upon a table facing a light, the Lanternescope will be found to afford great pleasure to the user, and also to be a convenient method of viewing lantern transparencies, when it is not expedient to "rig up" an optical lantern and screen.

—:o:—

Hints on Enlarging.

By A. R. Dresser.

Chapter I.

I have for some time promised the Editor of the *Magic Lantern Journal* to write a paper, and at last have found time to do so. I take enlarging for my subject for the reason that during the last few years hand cameras have come to the front so much, and of course those who use hand cameras (I speak of ¼-plate ones) are not content with showing their results in that size, but require larger sizes, and hence they must learn to enlarge, either by making an enlarged negative, or by enlarging direct on bromide paper. For amateurs, as a rule, it will be enlarging direct on bromide paper, but as some may like to make enlarged negatives, I will go into the various ways of enlarging.

Whether enlarging direct on bromide paper or making an enlarged negative, you will require an enlarging camera, and so I will describe mine, although I fancy it is well known, as I have so often given drawings of it. When enlarging this way, you require a camera the size you intend to enlarge up to, but as a rule 8 × 10 is quite large enough to enlarge ¼-plate to, although I enlarge that size up to 15 × 12, and have a camera made specially for that, viz., an 8 × 10 camera, with 48in. extension, and then I have a 15 × 12 camera back, with dark slide which slides into the back of the 8 × 10 (where the ground glass is), and the whole extends 6ft., and I can then enlarge a ¼ up to 15 × 12 with ease. If you want to work in any ordinary room, you get a cheap deal table (A in Fig. 1)

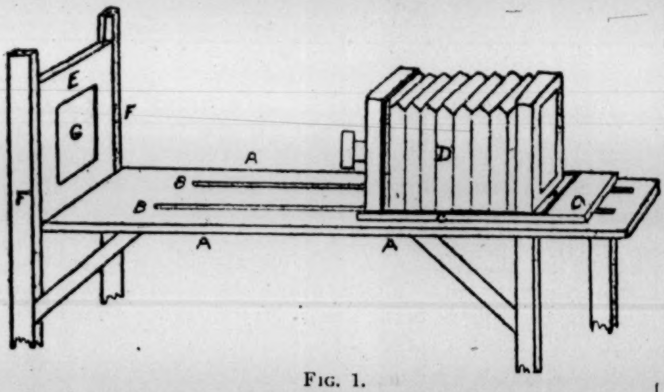


Fig. 1.

On the table you nail two pieces of grooved wood (BB), and then make box (C) that pushes back and forwards, and on this box you screw your camera (D). Your camera requires to have a long extension, say 36in., for enlarging to 10 × 12. Then at one end of the table you put up a carrier for your plates (E), which rises in two pieces of grooved wood (FF), so that you can then raise E up or push it down as required. In the piece of wood E you cut an opening (G) for holding your nest of carriers, from say 8½ × 6½ down to ¼-plate. I have my nest of carriers on a circular piece of wood, so that you can turn it round and round, so that if your lines in the negative are not quite right you can make them so. Now all you have to do is to place your negatives in the opening G, and focus to size required. Then, if you are working in an ordinary room, you face the window, put your dark cloth over the camera to exclude all light that is between the negative and the lens, and make your exposure.

If one has a large dark room it is best to cut a hole in the wall, and in it place the frame for holding your negatives, as then you can work much easier, as you are working in a darkened room, and are handy for developing &c.; but it is not many who have a dark room sufficiently large, and those who have not must work in an ordinary room.

Now, having described an enlarging camera, I will go on to various ways of working.

As I said before, there are two ways of enlarging—one by making an enlarged negative, and the other by enlarging direct on bromide paper.

1.—Making an Enlarged Negative.

This is by far the longest and most costly way of enlarging, but if you require a number of prints of a large size, then it is best to do this way, as you can then print on any sort of paper you may wish.

The way to set to work is to place the negative (¼) on the frame for negative (G, Fig. 1), and then copy it, and make a transparency. It is a disputed point which is best to do, whether to make the transparency to size required (say 10 × 12), or to make the transparency ½ or ¼-plate. I prefer to make the transparency ½-plate, and for so doing use a slow plate; in fact I have plates of all sizes coated with lantern slide emulsion, and use them for this purpose. Take great care that your negative is as free from spots as you can get it. If there are any, you must retouch them, then copy it and make a transparency ½-plate size. Give a good exposure, and use a small stop to get plenty of definition, and carry the developing well on; mind and dust the plate before exposing. There are various ways of dodging your negatives during the exposure by vignetting parts with cardboard, &c.

Now, after exposure and development, if your transparency is good, you let it dry after well washing, and then varnish it and do any retouching or spotting it may require.

Should the subject be one that requires a sky printing in, you choose a sky negative that suits the picture, and then make a sky transparency on a different piece of glass, remembering to put *film side* of sky negative from you so as to get it reversed. Now, after the sky transparency is made and washed, you place it on the subject transparency and work on it with a reducer so as to reduce any of the sky that may overlap the foliage, &c., in the subject negative. When both positives are dry, spotted, &c., you bind them together (film to film), and then copy them up to size required (viz., 10 × 12), and in that way get an enlarged negative. When copying this way I always use a wide angle lens, as it has a greater depth of focus at a big stop (in case you want to use a large stop).

Now all depends on the care you take what sort of an enlarged negative you get, as you must remember all faults and marking in your ¼-plate negative are enlarged, and so you must obtain for this work a good negative, and take care to keep free from dirt and stain during your various exposures and developments. If you know how to do the various ways of dodging and double printing, of course you have any amount of latitude in enlarging this way, as you can double print or introduce figures, &c., &c., by a little extra work, and by careful thought.

(To be continued.)

:o:

The Arc Light for Projection.*

BY DR. L. H. LAUDY.

(Continued from page 42.)

CLASSIFICATION.

IT is more or less difficult to make a classification of arc lamps in their present state, or divide them into a few distinctive types. The old classification divided them into monophotal and polyphotal. In the former the electro-magnet system, which produces the adjustment of the distance of the carbons, is traversed by the main current and is adjusted for a constant current. This prevents a number of lamps being placed in series, as the approach of the carbons is produced by mechanical means independent of the current. Polyphotal lamps are adjusted for a constant resistance of the arc. This is effected by placing the regulating apparatus in a shunt of the main current, which is also supplied with a cut-out device to short-circuit the lamp in the event of a disconnection in the arc. The objection to this classification is that one would be transferred to the other by an alternation in the winding of the coils. The better or later division is to class them either as series or parallel, which is dependent upon electrical conditions rather than mechanical. We may again subdivide them as a matter of convenience into:—1, hand regulation; 2, actuated by a spring (clock-work); 3, train of wheels and gravity; 4, differential and gravity; 5, clutch and dash pot; 6, electro motor; 7, focussing; 8, electro magnet and dash pot; 9, lever movement.

The most important consideration is simplicity of construction and sensitive motion of carbons, with speed to allow of instantaneous adjustment. These conditions are changing at each variation of resistance, which alters with the change of temperature in the conductor, and this again varies the potential, so that it is impossible to keep the arc constant. For any increase in the current the wire coils are heated with an increase of resistance in the lamp. To regulate these variations and to secure the proper proportions we meet with colliding difficulties and are confined to narrow limits in order to reconcile them. The necessary features in construction of a lamp are:—1, striking mechanism or separating the carbons; 2, feeding; 3, replacing, to put in new carbons (trimming); 4, moderating, to prevent carbons striking or hammering; 5, change over for two carbons; 6, cut out; 7, clamps for carbons; 8, driving power, which may be clock-work, gravity, weights, electro magnets, and electro motors.

The operation of an arc lamp consists of two movements:—First, the withdrawal of the carbons or striking the arc, which is caused by a stout wire coil placed in the main circuit; second, the approach of the carbons, which is brought about by a thin wire coil of high resistance placed in the shunt.

There is also added a cut-out circuit, which consists of a shunt coil and a series coil. These are so wound as to help each other's magnetic power, and the series coil must itself be a shunt to the main circuit of the lamp. As the carbons burn away the arc gets longer and there is an increase in the resistance; this diminishes the current's strength in the magnets, and the carbons descend until they meet and again form the arc.

The design of the lamp depends upon the condition with which it is to be supplied with current. That is, whether it is supplied by a constant potential with variable current, as is furnished by the Edison Company, or low tension current, that is having a voltage of 115 to 120 volts; or whether it is fed from a variable potential and constant current of high voltage, as is used in series arc-lighting. This current is known as the high potential, and the voltage runs in most cases from 1,000 to 3,000 volts. The objection to the latter is that to make any adjustment of the lamp the current must be turned off, and the lamp cannot be handled with the current on without danger, possibly attended with fatal results. The current used for projection should be the low tension, for with this the lamp can be handled without danger and all the adjustments may be made while the lamp is in operation.

When using the low tension current it is necessary to have some resistance in the circuit, when operating with one lamp, to cut down the voltage and deliver the proper amount of current. This resistance may be either coils of wire or low resistance lamps placed two in series and these in parallel. With four or six of these lamps the proper voltage will be delivered to the arc regulator with a current of from ten to twelve amperes. This form of resistance is more compact and the lamps are now made for this special purpose.

The great advantage over all other methods of illumination is its small cost per candle power, its intensity, whiteness, and parallel rays. These properties make it especially well adapted for purposes of projection, as it admits a larger number of rays to pass through the optical centre of the condenser.

The intensity of the arc light has been variously estimated at from 400 to 2,000 candle power. With a variable arc this will take place, but for purposes of projection this objectionable feature has been removed. With a proper position of carbons these changes in the intensity of the light fall within narrow limits, and the fluctuation due to the mechanical movements in the lamp is small, as the interval of the feed is about two seconds. The intensity of the light when the carbons are arranged, as described for projection, is from 1,200 to 1,500 candle power.

It is essential that the wires used to deliver the current to the regulator should be large enough to prevent heating, as all the heat must be made visible at the carbon points and none lost in the wires. It is better to have a separate set of wires starting as near the mains as possible with proper cut-out and fuses.

Estimates will be furnished by the company for this, as the work must be done by those skilled in the art, otherwise the proper conditions may not be fulfilled.

I have avoided using electrical and mathematical calculations, and to some this may seem a strange omission, while to others it will, I hope, make the article more readable.

A Scheme of Lantern Slide Exchange.

By F. G. Benson.

It has often occurred to me that Photographic Societies, especially those whose members work small sizes and produce large numbers of lantern slides, lose a considerable amount of pleasure by their lantern exhibitions being restricted to their own work. A few of our societies already effect interchanges of boxes of slides for exhibition, and, if mutually agreeable, exchange; but this is done by private negotiation between the respective secretaries. Even this limited application of the system of exchange I am about to advocate is productive of much pleasure to the members, who have an opportunity of seeing not only the work of other amateurs, but also get glimpses of the scenes of localities which they would not be able to visit personally. Again, societies who endeavour to form a series would frequently come across, perhaps, the very slide or slides wanted to complete a set. In this case an exchange could be effected, and each society benefited.

The plan I wish to put forward is very briefly this: That all societies who are interested in lantern matters should collect from the members a number of—say, 50—slides, and have a short descriptive account written of each. It would not be essential that the slides should be a series, though, if possible, it would be advantageous. The next thing would be to get the Editor of this journal to kindly grant a small space, headed, "Lantern Slide Exchange," for the various societies to advertise their sets. Each advertisement would run something like: "—— Society, 50 slides—viz., views of York, 20; Scarborough, 10; Bolton Abbey, 5; Durham, 10; miscellaneous, 5.—Apply, —— Secretary." After that it would be open for any secretary to correspond with the others as to dates, &c., the whole of the transaction, beyond the public notice, being privately conducted.

The rules by which the exchange should be made would be:—

1. The set from each Society to be at the disposal of any established society in the kingdom.
2. In the event of a mutual exchange, each society to pay carriage of slides one way.
3. In case a society unable to offer a box of slides in exchange wished to loan some slides, they could have that privilege by paying carriage both ways.

The advantages accruing to societies from an interchange of work, either slides or prints, are many. In all cases it is interesting to see work produced by other men and other methods; and where enthusiasm is on the wane, or the members are lethargic, the necessity of producing good work, in order to keep up the credit of the society, would be a considerable gain. There is, moreover, a feeling of cordiality and goodwill produced among the members, though personally unknown, by these exchanges, which cannot but promote the happiness of the individual, and a corresponding interest in and devotion to the fascinating art.

———:o:———

You may have a fine lantern, powerful light and fine slides, but if your lecture is not of an entertaining nature, the result will not be a success.—*Andrew C. Cole.*

Open Air Entertainments.

By Walter Smith.

Nothing to my mind is nicer than a stroll in some grounds, on a fine evening, when some photographic views are being shown on a large out-door screen; and a few words descriptive of an outing at which I had the honour of being present may, perhaps, be of interest. Through the kindness of Mr. G——, who has a fine house and grounds a few miles out from New York City, about two hundred of his friends were invited to a *stereoptic garden party*. Music, dancing, and refreshments took place during the evening, but these require no comment; the novelty of the evening was the lantern.

In an open space, around which were dotted numerous arbours, summer-houses, and rustic seats, two pine poles were set up, and upon this was fastened a huge screen, which was stretched as much as possible.

The lanterns were placed in a small house which had been extemporised for the purpose. The end of this house contained a large clear glass window, and the lanterns were placed so close to this that the lenses almost touched it. This house was, I should say, about 100ft. from the screen.

Wending my eye to it I learned several interesting hints from the manipulator:—

That outdoor entertainments would in all probability become very popular at no distant date, as promenading in the open air was very much nicer than sitting in a hall.

That when using the lantern for such entertainments it was absolutely necessary that the lanterns be kept under cover, else draughts would play havoc with both the limes and condenser.

That it was always preferable to employ a lens of very long focus, for however apparently calm it was, there was always sufficient wind to bulge the screen slightly, and a lens of very long focus had generally sufficient depth of focus to still keep the picture sharp, although from time to time the screen may be a few inches out of its proper place.

That as out-of-doors it was impossible to announce the names of each view, he had the name of each slide written on smoked glass, and this was projected from one lantern, and by the other was dissolved into the scene, so that the names and views appeared alternately.

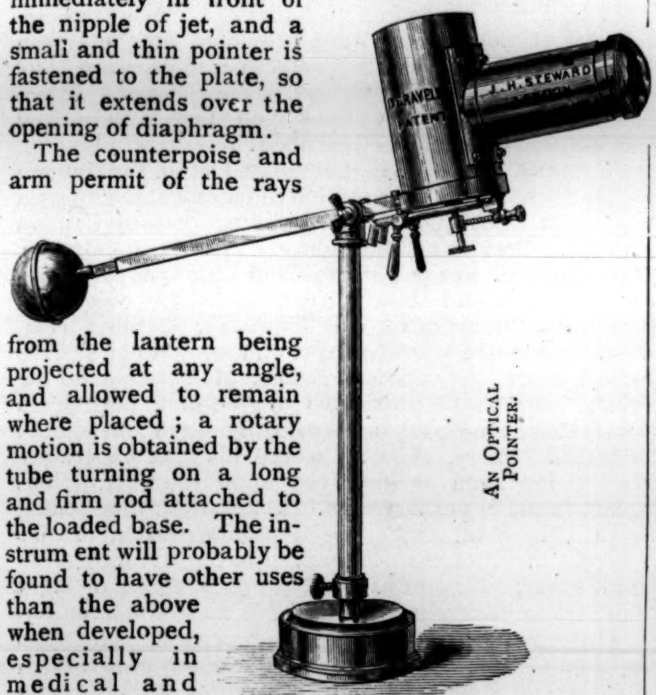
———:o:———

An Optical Pointer.

When papers are being read and lectures given at institutions, it is often necessary to refer to particular portions of diagram, maps, or an illuminated screen having a photograph or view projected on it; and if they are not very well illuminated it is difficult, especially in a large hall, for the audience that are some distance away to see the particular part that is being described. To obviate this, Mr. David Gravell, M.I.C.E., had the idea of concentrating a powerful light of a limited area on the diagram, and with the assistance of Mr. George R. Baker designed and patented an instrument as illustrated on next page, which has been made by Mr. J. H. Steward, optician, Strand.

It consists of a miniature lime-light lantern, having an adjustment from the outside to control the position of jet and lime cylinder, with taps and tubes for the supply of oxygen and hydrogen gases; but the optical system is different, for in place of the ordinary objective a lens giving plenty of light is inserted in a tube that is capable of focussing a small diaphragm placed immediately in front of the nipple of jet, and a small and thin pointer is fastened to the plate, so that it extends over the opening of diaphragm.

The counterpoise and arm permit of the rays from the lantern being projected at any angle, and allowed to remain where placed; a rotary motion is obtained by the tube turning on a long and firm rod attached to the loaded base. The instrument will probably be found to have other uses than the above when developed, especially in medical and dentist work; also, for medical diagrams, and illuminating important sculpture, frescoes, tapestry and objects out of reach when being shewn to students.



An Optical Pointer.

——:o:——

A patent has been taken out by Mr. Ranson, of 122, Newington Butts, S.E., for a method of converting a camera into a telescope. The ground glass is left clear in the centre, and an eye piece, which also acts as a focussing glass, is used in conjunction with the photographic lens.

The *Photographic Quarterly* (October), edited by Ch. W. Hastings, contains an illustration from a pin-hole photograph. The aperture was $\frac{1}{80}$ of an inch, and the plate (8in. × 5in.) 8in. from it, whilst the subject (rocks) was 25ft. distant. The exposure occupied eight minutes. It also contains about ninety pages of interesting articles by prominent writers.

Under the auspices of the Photographic Club, a musical and lantern entertainment was given on October 24, at Anderton's Hotel, Fleet-street, E.C., in aid of the funds of the Photographers' Benevolent Association. An excellent programme was provided under the direction of Mr. F. A. Bridge. Lantern slide displays and music alternated. Slides were lent by Messrs. Ackland, Acres, Atkinson, Bridge, Carpenter, Cembrano, Chang, Dando, Freshwater, Guardia, Hastings, Newell, Scrivenor, Wellington, and White. Excellent songs were rendered by Misses Constance Harding and Rosa Lake, and by Messrs. Bridge, Cooper, Monkley, and Scrivenor. Miss Louisa Pyne performed fine selections on the pianoforte at intervals throughout the evening. The lantern was manipulated by Mr. Beard, and Mr. Bridge gave descriptions of the pictures as they appeared on the screen. Everyone present had an enjoyable time, and about £10 was added to the funds of the Photographers' Benevolent Association.

Editorial Table.

We have received from Mr. William Tylar, Birmingham, a handsome Lanternescope, particulars of which will be found on another page. The instrument will be found very useful, and being neat, strong and ornamental, would form a useful and entertaining adjunct to the furnishing of a drawing-room table.

Developing Tray.—The Fry Manufacturing Company have just introduced a wooden tray with glass bottom, intended for the development of lantern transparencies. It is strongly made, is coated with varnish, and answers the purpose well for which it is intended. Being sold at the small sum of sixpence, it should have a large sale.

Christmas Photograph Mounts.—Messrs. Hooper and Company, of 5, Hand-court, Holborn, have sent us a few samples of their styles of mounts. These are of a variety of sizes, and are both of matt and enamelled surfaces. One new and pretty style has a notched, bevelled and gilt edge.

Dictionary of Photography.—By E. J. Wall (London: Hazell, Watson, and Viney, Limited).—The second edition (revised) has just been issued. Several additions have been made, and the work brought up to date. We observe that in all the formulæ both the English weights and measures and their metrical equivalents stand side by side. The book is a good reference work, and one cannot fail to obtain much valuable information.

Slide Binders.—Mr. C. C. Vevers, of Leeds, issues lantern binders in six different colours. We have received a box and a colour sheet. The colours are of striking contrast, and the paper of a strong and tough make.

Lantern Slides: How to Make Them.—This booklet, by A. R. Dresser (published by the Fry Manufacturing Company at 6d.), gives very explicit and interesting instructions in a series of nine chapters. The different methods of producing slides are explained. Full instructions are also given relative to printing in clouds, toning various colours, &c. Each chapter is so clearly written, that one quite unused to making slides should after studying this book be able, after a little practice, to produce creditable transparencies from negatives. We have pleasure in recommending it to our readers.

——:o:——

Correspondence.

WASHING SITTERS' FACES.

[*To the Editor.*]

Sir,—Whilst I agree in the main with some remarks made in your columns that a better photograph can be obtained soon after one has washed, yet I think the matter is slightly overstrained when the benefit is attributed to the removal of dirt or (more politely) foreign matter; and in my opinion it is from the friction of the towel in drying that the benefits (pictorially speaking) are to be derived. Friction properly applied will cause many lines in the face to disappear, be-cause the skin assumes a certain puffiness in consequence of the action of the towel in drying.

I certainly think that by the judicious application of the hints thrown out upon this subject, sitters may be more easily satisfied with their proofs, and also that retouchers can be spared some of the labour that would otherwise be requisite. I like to put as little retouching as possible on a negative, but take pains that that little is put in the right place. I am a firm believer in the saying, "The more retouching the less the likeness."—Yours, &c., G. L. A.

London, W., Oct. 6, 1890.

ETHER-OXYGEN SATURATOR.

[*To the Editor.*]

DEAR SIR,—Will any of your readers kindly tell me the result of their experience of the ether-oxygen saturator for dissolving purposes? I should like to use it myself, but before doing so wish to satisfy myself as to (1) its safety; (2) the steadiness of the light produced; and (3) whether the consumption of oxygen is excessive.—Yours faithfully,

Isle of Wight, Oct. 14, 1890. LUX.

COPYING BY ARTIFICIAL LIGHT.

[*To the Editor.*]

DEAR SIR,—I enclose extract from a letter I have just received from Mr. Griffiths. I think it is an answer to what I saw in your correspondence column.—Yours truly,

46, Chesilton-road, Munster-park. T. H. HOLDING.

"It is in the nature of all copying arrangements to be difficult to work by artificial light. Magnesium ribbon is about the best thing, but it must be moved about; and a ground glass put over the negative groove is provided. Also use a quick plate."

——:o:——

Society Meetings.

THE LANTERN SOCIETY.—The first meeting of the season was held on Oct. 13, at 20, Hanover-square, W., Mr. T. H. Holding in the chair. Mr. Andrew Pringle gave an interesting discourse on "The Modern Applications and Appliances of the Lantern." He briefly traced the lantern from the toy style with bullseye condenser. He expressed a hope that with a journal and a society devoted to the lantern it would become more general, and be more utilised. The general optical system was explained, also the uses of the body. Regarding the general construction, a reference was made to a fine triple on the table (by Stewart), which Mr. Pringle explained contained all the appliances for an exhibition of the highest class. He also exhibited a small and compact folding lantern, which he had had constructed for his own use, which was contained in a mahogany box 7 × 6 × 5½ inches. The various condensers and projection lenses were described in the order in which they had been introduced. The good points desirable with a lens were large back combinations and a flat field. The construction of various burners and jets was explained, amongst them being the Drummond, Beechey, calcium, blow through and mixing jet. In order to prevent "roaring" in jets it was necessary that there should not be any sharp bends, and the bore of the nipple should be properly proportioned to the pressure of gas. Referring to the general safety of gases, he considered cylinders fitted with Beard's regulator absolutely safe, and in all cases of accidents it had been found to be attributable to the gases being mixed. The Broughton tank and Scott's saturator were described. He did not look for any great results from the use of the arc light as an illuminant, as there was a difficulty in maintaining a central light. The lecturer had in use a canvas screen, with a zinc white surface, the frame being of gas-piping in sections. For educational and scientific purposes the lantern had a great future before it, although in his opinion the days of amateur effect displays were played out, but many other uses to which the lantern could be put had not yet begun to "play." Several microscopic sectional slides were projected on the screen with Mr. Lewis Wright's projective microscope, and also an arrangement designed by the speaker. Attention was called to Newton's open stage lantern, and its general capabilities described.

CAMERA CLUB.—On Thursday, Oct. 9, the Camera Club opened its winter session of technical meetings, a paper on Density of Negatives being read by Captain Abney. Previous to the address Mr. W. A. Greene, the hon. sec. to the Camera Club Co., Limited, made a statement, and the chairman called for objects of interest or questions. On Thursday, October 16th, Mr. Lyonel Clark read a paper on toning rough surface silver paper. Mr. Wilson Noble, M.P., occupied the chair. Mr. Clark proceeded to give some particulars of treatment in sizing and sensitizing rough and smooth surfaced papers, showing where his later experience had varied from or improved upon the instructions given in his paper last year. He also described toning with palladium, and gave a demonstration of this process in which the print was subsequently intensified with silver. A print exposed for only seven or eight minutes to day-light was thus built up to full intensity.

HACKNEY PHOTO SOCIETY.—A private auction was held on October 9, under the directorship of Mr. H. J. Beasley (a member) The idea was that although many amateurs bought photographic and lantern apparatus which was found useless to them, it might not be to others. Little, if any, reserve was placed on them, Mr. Beasley giving a humorous description of the various articles. Mr. William Smith showed a new repeating flash lamp, which was handed round. The repeating action was brought about by a spring, which caused a boxful of powder to discharge a given quantity into a small chamber, and on releasing the spring the box went back. The flash was caused by magnesium being blown upwards through a spirit stove.

NORTH LONDON PHOTO SOCIETY.—General meeting, Oct. 7th, Mr. J. Traill Taylor in the chair. The secretary announced that the four negatives provided by Mr. Mackie for the lantern slide competition early in next year were now ready for circulation. Each member is to make slides, with or without clouds, by any process from the negatives provided by Mr. Mackie, and these will be exhibited side by side upon two screens, the members themselves being the judges as to the best productions. The lantern of the society was brought into requisition under the management of Mr. Parfitt, and a large number of beautiful slides were exhibited upon the new patent screen presented to the society, by Mr. Hart, of Kingsland. There can be no doubt about the portability, stability and usefulness of this screen. It has every arrangement for fixing it in any position to the floor; can be made of any size, and can be inclined at any angle to suit the position of the lantern, and when done with can be taken down in a few moments, and packed away in a very small compass. Slides were exhibited by Messrs. Dando, Tavener, Grover, Tanner, Walker, Collins, Medland, Powell, and the sec. All the slides shown were of excellent quality, and it was agreed that this was one of the most interesting and successful evenings which the society has had.

Ealing Photographic Society.—About 100 lantern slides were exhibited at the meeting on Oct. 16, including local and other views, by the president (Mr. H. W. Peal); views of Shakespeare's house, &c., at Stratford-on-Avon, by Mr. C. Whiting; foreign views, by Mr. Amery; and miscellaneous views, by Mr. Dunn and Mr. Brooks. In answer to Mr. Taylor, Mr. Whiting stated that the difference in colour of some of the slides developed with hydroquinone arose from variations in the quantity of bromide used, or from variations in exposure, a longer exposure giving warmer tones. On November 6, Mr. Whiting will demonstrate the method of making lantern slides.

Photo Section, Croydon Micro Club.—The first lantern evening of this session was held on Friday, October 17, at the Public Hall, Croydon. A large number of slides, many of a very interesting character, the work of the following members:—Messrs. W. Brooks, J. A. Carter, A. W. Hirst, J. Puren, C. F. Oakley, E. A. Patch, W. Low Sarjeant, and others, were projected on the screen. A selection of slides, kindly lent by the honorary secretary of the Hastings club, was also exhibited. Messrs. W. Brooks and W. Low Sarjeant presided at the lantern. Meetings for November:–Technical evening, Friday, November 7, eight p.m.; lantern evening, Friday, November 21, eight p m.

Dewsbury Amateur Ppotographic Society.—The monthly meeting was held on October 9th, Mr. T. G. Beaumont (president) in the chair. The secretary handed round pamphlets from Mawson and Swan's, on "Transparency Making and Bromide Enlarging." Some specimen silver prints, printed through green glass, were next shown. The society's lantern was next brought into use, under the able management of Mr. C. Naylor. The slides exhibited by Messrs. Naylor, Mitchell, Taylor, Scargill, Greaves, Harrop, and G. Kilburn were of an excellent character. For technical qualities they were the best that have been shown. The variety of subjects was great, including views from the Isle of Man, North Wales, Derbyshire, Morecambe, Lancaster, Ambleside, Alnwick, Scarborough, Conisbro' and other local views. A rather singular coincidence was that every member who showed slides was using Thomas's lantern plates quite unknown to each other. About 100 slides were put through the lantern.

Lewes Photographic Society.—Tuesday, Oct. 7, was devoted to a lantern exhibition by the aid of the new society's lantern, which was used for the first time. It is intended to arrange for members of the society to be able to hire the lantern for home use for a small fee. The slides shown were mostly local views, many of which had been taken in a hand camera. Mr. J. C. Braden, president of the society, ably manipulated the lantern.

North Middlesex Photo Club.—Mr. Rogers gave a lecture (Oct. 13) on "Pictures of Egyptian Life," and illustrated the same by the optical lantern. He first said he thought it might interest his audience if he showed the apparatus by which the pictures afterwards exhibited upon the screen were taken. This was a Shew's camera, quarter-plate, fitted with Eastman's roll holder and celluloid film. He then proceeded to give an interesting account of the places visited by him, also of the manners, dress, customs, and method of living of the people. The whole of the pictures exhibited in illustration were calculated to give those who had not visited the country a thoroughly good idea of what it was like, as instead of confining himself to *bits*, he had taken views in which a comparatively large district was included as a background.

Paisley Photographic Society.—On Tuesday, October 14, this society opened the winter session with a lantern exhibition, in the Lecture Hall of the Free Library and Museum. There was a large attendance of members and friends, Mr. A. T. Craig having kindly undertaken to show the slides of members by his fine oxy-hydrogen lantern. About one hundred and fifty slides were shown on the screen, including some fine views of Paris, Switzerland, &c., belonging to Mr. Craig. Messrs. Mure, Rastall, Morrison, Kilpatrick, Dunn, Thomson, Taylor, and Jack also contributed slides. Many of these were the result of the summer's work, and being local views and yachting scenes proved very interesting, and were highly appreciated by the audience. At the close of the exhibition Mr. James Donald, the vice-president, proposed a vote of thanks to Mr. Craig for his kindness. The members afterwards adjourned to the committee room. It was agreed to hold an exhibition of photographs, &c., in the Picture Gallery, in the month of February next.

South London Photographic Society held the first lantern evening on the 3rd October at their new quarters, Hanover Hall, Rye-lane, S.E. After the routine business the lantern (a bi-unial) was lighted, and a good collection of slides shown, there not being a faulty one amongst them, though, of course, as in all miscellaneous shows, some were finer than others. The subjects varied from instantaneous street views in the neighbourhood of Charing Cross, including a parade of the Life Guards, to scenes in Great Yarmouth, Isle of Wight, Victoria Park (these last being taken with the Ideal Hand Camera), and Ireland, one of these being a likeness of the "gintleman that pays the rint," excellently photographed by Mr. Esler. The lantern was lent by Mr. Banks, and worked by Messrs. Banks and Gardner.

York Photographic Society.—The first lantern evening of the season took place on October 7. Mr. MacCormac had a very beautiful series of the Isle of Man, which were made on the Mawson plates, developed with pyro, and were of an exceedingly pleasant dark sepia tone. Mr. Vincent showed slides developed with eikonogen. Messrs. Ogden and Jones had some pleasing subjects capitally rendered. Mr. Brewster, of Liverpool, gave the members an unexpected pleasure by showing a number of capital views of Venice, Italy, and the South of France, the interest being materially enhanced by a short description as each picture was thrown on the sheet.

Belfast Y.M.C.A. Camera Club.—The usual monthly meeting held on Sept. 29. The competitive prints were laid on the table; the competition was keen, there being little to choose between the first and second. The first place was gained by a picture named "Evening." The subject was two fishing boats which had just anchored in harbour, a punt alongside fetching men and fish ashore. The second was a beautiful view on the Logan canal, embracing the boathouse, and a few cottages. There were seven entries in the lantern slide competition, which was composed of sets of three pictures. These were thrown on the screen and judged by the members. The entire lot was fair average work, one or two slides being of great excellence. This competition proved so interesting that it is intended to continue it each month throughout the winter. On Oct. 15 a meeting was held to receive the lecture, "Illustrated Boston." Mr. William Strain presided. In his introductory remarks he explained the nature of the lecture and by whom it was originated, and suggested that we should get up a set to illustrate our city. There were between two and three hundred in attendance, who much appreciated the views and descriptive remarks. Cordial votes of thanks to our Boston friends, the chairman, reader, and operator at the lantern brought the meeting to a close.

CREWE AMATEUR PHOTOGRAPHIC SOCIETY.—The October meeting was held on 23rd October, the president (Rev. W. G. Rainsford, M.A.) in the chair. The secretary's report showed a slight increase of members, and financially a good substantial balance in hand. It was agreed to hold a soiree and exhibition of work and lantern slides at the annual meeting, on Thursday evening, January 8, 1891. It was resolved that the society's album be completed as early as possible and presented to the Crewe Hospital. The president gave a very interesting and instructive sketch of his recent tour to Norway, illustrated by original slides. Among them was a group taken at midnight on board ship at Trondhjem.

——:o:——

Notes and Queries.

S.—We forwarded your communication to Mr. Ranson; his address was in the advertising pages of the October number.

Robt. White, jun., writes: "I am trying to make a signalling apparatus such as is mentioned in your Journal. Can you tell me the different chemicals that are put in the battery (sketch enclosed)?" *Answer.*—The battery you describe is the Leclanché. The outer jar should contain a rod of zinc and a solution of sal-ammoniac, and the inner porous jar a carbon plate, peroxide of manganese, and broken gas carbon. The simplest and best way would be to purchase a jar charged and sealed; you have then merely to pour in a supply of water, and this will probably last a couple of years without attention.

N. A. writes: "Will you kindly tell me the meaning of the long brass slide that is often found in front of the condensers of biunial lanterns; it seems to shut off the light when drawn up and pushed down?" *Answer.*—For curtain effects, by allowing one slide to be uncovered whilst that in the other lantern is being covered over, thus presenting the effect that one picture is being rolled up, revealing another behind it.

R. Dormer.—(1) The etho-oxygen light will be sufficient for a fountain such as you mention. (2) Green, blue, yellow and the various reds are very effective. (3) If the lantern is immediately above, use a mirror to reflect the light; it may, however, be used from an elevation at side, or even on the ground. (4) Yes, twenty gallons per minute should make a good display. (5) The fall of water could be confined within the space mentioned, but it depends on the formation of the nozzle. (6) The higher the top reservoir, the higher the stream of water.

R. Turner writes: "I am given to understand that the optical axis of the condenser and objective should be the same, that is that all the lenses should be parallel to each other. How about tipping the front in a biunial lantern to make discs coincide? Does this not displace the axis by placing the lens at a slight angle to the condenser, and how is this allowed for?" *Answer.*—The condenser is so attached to the front that it moves with the objective; the latter is not stationary, as you evidently suppose.

W. Simpson writes: "At railway stations I have noticed that the main gas supply is turned off when no trains are in, and a small tubing connects the piping on either side of the tap, which keeps the burners alight, there being but a small flame. What I want to know is, Is this the principle on which lantern jets are made, so that, although the hydrogen gas may be turned off, a small flame is still allowed to burn?" *Answer.*—Bye-passes for jets are not constructed in precisely the same manner, although the principle is the same. An examination of a jet tap will enable you at once to see the principle of the bye-pass.

R. A. R.—(*a*) Yes, 3 is a superior article compared to 1, whilst 2 is little better than a toy. (*b*) If the camera will not rack out sufficiently, attach a cone to the front of it, and secure the lens to this; we would advise you not to take the bellows off as you suggest. (*c*) No difference whatever.

Argus writes: "I want to try my hand at making tintypes. Can you tell me where to get a book on the subject, and the cost?" *Answer.*—A book or pamphlet, "The Ferrotyper," is published by Messrs. Percy Lund and Co., Bradford; we do not know the price.

Wm. Bevan.—We too have received a circular from the firm you mention. Have nothing to do with them. How can you expect a life-size portrait framed free of charge? If you read the circular carefully you will find that the picture only is supplied free on condition that you allow the firm to frame it, but the cost of the frame is not mentioned.

Lantern, of Tidal Basin, writes: "'P. C.' in the September issue writes to say that he is looking forward to the particulars of my lantern I promised in the July issue. Kindly inform him through the Journal, owing to my calling in life being seafaring, I have not had the opportunity of doing anything at it, but having a short time at home I am going to lose no time in making it; he may look out for description in next issue. If 'P. C.' would like to correspond with me the Editor has my address; no doubt he would forward it on receipt of stamped and addressed envelope."

Lantern.—Make the cell to hold the condenser of just sufficient depth to allow the condenser to come flush with the outside. Fasten the cell in the inside. We hardly understand your difficulty. If you send us a note with a diagram we may, perhaps, be able to assist you.

Hydrogen.—Very slightly in favour of pure hydrogen.

——:o:——

REMOVAL OF D. NOAKES AND SON.—This firm have been compelled to remove in consequence of the rapid growth of their foreign and retail trade, and have secured very extensive show-rooms and workshops at 23, Nelson-street, Greenwich, which is but a few minutes' walk from their old address in Billingsgate-street. Messrs Noakes inform us that their new intermediate regulators are in great demand, and express their intention of sending us a set for trial. These regulators have, we understand, been adopted by the Sunday School Union on their best triple lanterns.

——:o:——

THE applications of photography to scientific purposes become every day more numerous and varied, and I do not hesitate to say that it is in this direction that photography has won, and probably will win, its greatest triumphs.—*R. H. Bothamley.*